

APRIL/MAY 2025

**FAEL32/CAEL34 — BASIC PHYSICS – I
(ALLIED)**

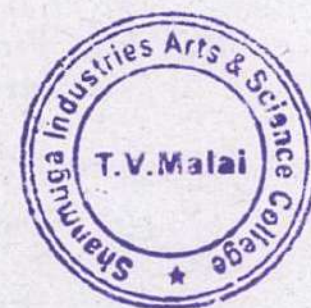
Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define moment of inertia.
2. What is meant by escape velocity?
3. Define stress and strain.
4. What is an elastic limit?
5. Define coefficient of viscosity of a liquid.
6. What are cohesive forces?
7. State first law of thermodynamics.
8. Define entropy.
9. Define loudness.
10. What is an ultrasonic wave?



SECTION B — ($5 \times 5 = 25$ marks)

Answer ALL questions.

11. (a) Derive the expression for kinetic energy of a rolling object.

Or

- (b) Discuss the variation of acceleration due to gravity with depth.

12. (a) Find an expression for the work done in stretching a wire.

Or

- (b) Calculate the work done in twisting a wire.

13. (a) Briefly explain streamline flow and turbulent flow.

Or

- (b) Derive the expression for excess pressure inside a soap bubble.

14. (a) Briefly explain coefficient of thermal conductivity.

Or

- (b) State and explain second law of thermodynamics.

15. (a) Write a short note on the factors affecting acoustics of building.

Or

- (b) Explain piezo-electric effects.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain the experimental determination of gravitation constant G by Boy's method.

17. Derive the relation between elastic constants.

18. Describe the experimental method of comparing the viscosity of liquids using Oswald's viscometer.

19. Explain the change of entropy in a reversible process.

20. State and derive Sabine's formula for reverberation time.

